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ABSTRACT

This study was designed to compare the attitudinal and lifestyle patterns of video game players with the amount of time they play, the number of games they play, and the types of video games they play, to determine whether their personal use of time and attitude toward leisure is different when playing video games. Subjects were 200 individuals (110 male and 90 female) ranging in age from 7 to 62, who were questioned by a team of 20 interviewers who had been instructed to go to any place where video games were present to observe whether the subjects were playing alone or with someone, the game being played, and the level of apparent involvement with the game. Male respondents appeared to play video games significantly more often than female respondents, with younger males playing most often. While women generally preferred to play against someone else rather than against the machine, they also demonstrated a higher level of computer knowledge than males. Compared to popular writings on the impact and uses of video games, findings indicate that video games are merely an option to traditional games and that the term "addiction" may be used too liberally, given the amount of play and the amount of money spent on games by younger respondents. This report includes 44 references, 4 tables, and the video game user survey. (LMM)

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VIDEO GAMES: COMPETING WITH MACHINES

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Abstract

This study explores attitudinal and lifestyle preferences of two hundred video game players to determine how much they play, and why they play video games. Compared to popular writings on the impact and uses of video games, this research suggests that video games are merely an option to traditional games--and that the "addictive" behavior demonstrated by some people is really not as prevalent as some would think. Though video game playing does replace some formerly interpersonal behavior with technology, the games tend to be more negatively viewed by persons who don't understand--and are fearful of technology.

VIDEO GAMES: COMPETING WITH MACHINES

It has been estimated by executives in the video game industry that tens of thousands of electronic games now operate across the United States, and that these machines take in more than eight-billion dollars worth of quarters a year (Christian Science Monitor, Dec. 15, 1981:17). The popular press has reported both positive and negative effects of video game playing, particularly concerning the effects these games have on children. However, most of the reports thus far have been based upon fear and speculation rather than scientific study.

What seems to confound many parents and writers, is the application of technology for game playing purposes. Game playing has traditionally included elements of sociolization, competition, role playing and fantasy--all items which could be considered in discussions of video games, but it appears that when technology replaces other persons in the game structure, the rewards of "gaming" become more questionable. This paper attempts to place video game playing within the traditional approaches to game playing, while realistically monitoring the amount of play, and the perceived role of the video game in society.

WHAT DO WE KNOW ABOUT VIDEO GAME PLAYING BEHAVIOR?

Video games have become the center of much controversy in cities and towns across the United States. Many communities have drawn up ordinances and have passed legislation restricting the use of video games by young people. In Marlborough, Massachusetts, youths under the age of eighteen are prohibited from using acrades at night and during school hours ("Video games - fun or serious threat?" 1982:7), and in Illinois, children under the age of fifteen are prohibited from playing public video games ("Town Zaps Video Games" 1982:13). In Coral Gables, Florida, a permit was given for the establishment of a video parlor, but the permit specified that a policeman must stand guard at all times ("When the Space Invaders Beam In" 1981:29). In Midland Park, New Jersey, where pinball machines have been banned since 1950, there are currently three court cases concerning video games pending ("Town Zaps Video Games" 1982: 13), and in Mesquite, Texas, the city council went so far as to bring up their case to the Supreme Court ("Video Games --Who's In Charge?" 1982:6).

While much of the controversy reminds one of the fears parents expressed about their children spending time in pool-halls several decades ago, a more contemporary fear is that video games playing may "teach gambling and breed

aggressive behavior"("Battle for America's Youth" 1982:2). Even the Surgeon General, C. Everett Koop, has stated: "American youths are becoming addicted to video games... the games may be hazardous to their health" ("Battle for America's Youth"1982:2).

Other common fears have been articulated by psychiatrists and other doctors who have seen symptoms in children such as "tensions, sleeplessness and dreams having to do with killing, eliminating, or destroying"("TV Games Zapping Kids' Minds?" 1982:28). A less eloquent statement was provided by television talk show host Phil Donohue, who stated on one of his shows that "video games are contributing to the dumbing of American textbooks," and hence, "to the dumbing of American schoolchildren" (Play Meter 1982:146).

But are these fears well-founded? Joseph A. Dunne, President of the National Council on Compulsive Gambling has stated that as yet, there are no statistics on how many children are overly involved in video game playing, nor do we know the ages of the children playing. Still, in general, gamblers start between the ages of eleven and thirteen (New York Times Aug. 31, 1982:16), a fact difficult to ignore when watching children of these ages playing games, and casually observing their level of involvement.

Another common complaint is that parents feel their children are "wasting too much time" by playing video games. One psychologist however responded, "with or without

video games, wasting time is a part, a good part, of what childhood is all about" ("Wasting Time" 1982:18).

While research is as yet not extensive, many professionals in the area of child development see positive aspects of video game playing. Video games, they conclude, teach hand/eye coordination, introduce children to computers which are necessary tools for the future, and allow children who are not athletically inclined to become "masters" of a skill ("Video games offer a lot more than fun" 1982:26).

Dr. Lee Salk, a Manhattan psychologist, thinks that video games have an indirect intellectual value since; "the child must sort out shapes, forms, colors and movements"(Dial 1982:8). Others believe that video game playing may give an outlet to work out aggression in a socially approved manner ("Video Games Have a Purpose" 1982:126). Joyce Hakansson, project manager for computer software at the Children's Television Workshop applauds the games as ways to get children working with new technology ("Using Electronic Games to Challenge Kids" 1981:17).

Dr. Mitchell Rosenthal, President of Phoenix House, a rehabilitation center in Manhattan thinks that the word

"addiction" is overused. "These games don't change the level of consciousness as drugs do, but they can be narcotizing, and they can be the focus of ritualized or obsessive behavior" (New York Times 1982:16).

The little research conducted thus far with adult video game players generally involves the level of stress associated with playing the games. It has been determined that a person seated in a chair, will elevate pulse rate to as much as sixty beats per minute, with blood pressure increasing to as much as 220 mm within one minute of play ("Video Games--Hazardous to Your Health" 1981:31).

However, the advocates for video game playing for youths or adults come from physical and occupational therapists, who see the skill/pleasure components as critical to development. As one doctor has stated: "Video games are fun, an important factor in occupational therapy where pencil-pushing tasks produce tedium and frustration"("Video Games May Aid Brain-Injured 1982:168). Paraplegics have had great success practicing wheelchair navigation with a joystick similar for games which simulate driving ("Video Games as a Teaching Aid 1982:23).

Renee O'Kaye and Anthony Hollander, two New York occupational therapists tested the effectiveness of multi-sensory stimulation upon children who were considered to be "learning disabled." After six weeks of structured

sessions, they tested childrens' motor accuracy, eye-hand coordination and kinesthic awareness. All scores had greatly improved over the six week sessions ("Electronic Games Help the Handicapped" 1982:44).

The Epilepsy Center at Johns Hopkins uses specially wired Atari sets to determine effects of anticonvulsant drugs on learning and ability. Dr. Eileen Vining, associate director of the center says: "the advantage of the games is that children are eager to make their best efforts in eye-hand coordination tests" ("Video Games are Blitzing the World" 1982:58).

Dr. Edward Friedman, a Manhattan optometrist says: "Under professional supervision, playing video games can help to make fine visual judgements in a hyperactive child who is easily distracted and who has a reduced attention span" ("Games Exercise Mental Ability 1982:44).

Similarly, video games have been found to be worthy adjuncts to specialized training, and the U.S. Army has effectively used video games for instructional purposes. Because the Atari video game system has the same controls, telescopic sights, firing and tracking procedures, as well as the same target identification problems as the new M2 troup transporter, the Army has opted to use the video games to train personnel, citing lower costs of video game equipment as more practical than instituting the M2

simulator ("Video Games Train Army" 1982:24). The Army has also used two software systems familiar to video game players, such as the game "Battlezone" which is a training device "which donesn't appear to be one"("Video Creatures" 1982:16), and "Combat," which has also been used by the Naval Aerospace Medical Research Lab for performance testing (Play Meter 1982:40).

The idea that the military would be interested in using gaming devices for training is certainly not new. Military war games have been useful training experiences for centuries, and several popular games have used similar strategies. Chess, for example, is similar to a war-strategy game, and has been played since the eighteenth century. More recently (and escalating in the sixties) popular games became even more widely played. The average player in the sixties tended to be male, highly educated, and interested in the military, history, or was a collector of military figurines (Levy 1978:43). Popular games in the seventies seemed to take war strategies and place them in outer space.

VIDEO GAME PLAYING AND TRADITIONAL GAME PLAYING THEORIES

Two of the earliest areas of research on play involve both Schiller and Spencer's theories of play as surplus energy (Wilkinson and Willoughby 1967: 16), and play as a time to recharge energy (Schaller 1861; Lazarus 1883). G. Stanley Hall (1906) proposed that play was used by the child to recapitulate phylogenetic behavior and thus acquire the skills of his ancestors for his own mastery of the environment. Many theorists of the nineteenth century were influenced by the Darwinian point of view, such as Groos (1901), who stated that those animals who survive are best able to cope with prevailing conditions and that, if animals play, play is therefore useful for the practice of skills, i.e. developing competence.

However, it was Johan Huizinga (1955) who identified the "play element" within culture, and who recognized that play is incorporated into all aspects of life. Huizinga determined that we could not just speak of Man in terms of reason (Homo Sapiens), and work (Homo Faber), but also in play (Homo Ludens).

Other researchers took the approach of ascertaining what types of people engage in leisure activities, such as games (Clarke 1956), while still others have examined the influence of variables such as status, prestige and occupation on leisure activities (Reissman 1954; White 1955; Thomas 1956; Havinghurst and Feigenbaum 1959; Gerstl 1961;

Burdge 1969; and Bishop and Iheda 1970). The findings of these studies point conclusively to the fact that members of certain groups, be they classes or occupations, participate in different activities.

In 1969 Meyersohn (1969) specified three approaches to the study of leisure; (1) activities, (2) expenditure of time and money, and (3) meaning. Neulinger and Breit (1969) have stated: "We are interested in how people want to spend their time and money, and how much satisfaction they get from spending it the way they do" (Neulinger and Breit 1969: 5). It is particularly interesting to note that the work of these writers reflects a concern for the conomy which is often an understated variable. Today, with recessionary influences changing lifestyle patterns for so many people, particularly in the amount of available money for leisure, the expenditure of money for game playing may be viewed as a more important indicator of involvement than might normally be considered in determining trends.

A variation on the proposals suggested thus far comes from the work of Stephenson (1967), who postulated the "Play Theory of Mass Communication." Stephenson's main thesis is that "mass communication allows people to become absorbed in subjective play"(1967: 67). Based in large part on the work of Huizinga, Stephenson determined that

communication-pleasure is at the root of the enjoyment of any form of mass communication. Stating that "play has little gain for the player except in self-enhancement" (1967: 69), Stephenson effectively tied together concepts of psychological dependence upon mass media (Toeplitz 1963) and on the social control provided by mass media. His theory states that mass communication has two functions: (1) to foster mutual socialization and (2) it "rocks the boat,"--to be in the forefront of change in status quo conditions. "The achievement of mass communication lies in the way it short-circuits older beliefs, substituting new values for them"(Stephenson 1967: 70).

While video games are not in themselves forms of mass communication, they do share certain characteristics with forms of mass communication. First, they are a mediated form of entertainment, and secondly, they use traditional forms of technology heretofore used for the consumption of mass communication messages. As interactive systems are developed, video games will continue to share more similarities than differences with other forms of mediated entertainment (Pashler 1981).

PURPOSE OF THE STUDY

The literature on games and leisure suggests that video game playing is nothing more than a contemporary manifestation of learning about computer technology in a non-threatening way, developing social skills, and receiving gratification from the act of play. But the popular literature concerned with issuing warnings and fears about the amount of video game playing seems to interpret video game playing behavior as "addictive," in nature, and more often than not, a waste of time.

This study was designed to compare respondents' attitudinal and lifestyle patterns with the amount of time they played, the number of games they played, and the types of video games they played, to see if personal use of time and attitude toward leisure was different when playing video games. It was assumed that age, sex, and computer literacy might influence responses, therefore these items became important variables in understanding the data.

More specifically, the following questions were posed:

--What factors influence acceptance or rejection of video game playing for the individual?

--How much money do video game players spend on video games, and is money an indicator of addictive behavior?

--According to Stephenson's "Play Theory" what "communication-pleasure" is experienced while playing video games? Is it more appropriate to discuss video game playing as it compliments game theory or media theory?

--Does technological apprehension (fear of technology) influence acceptance of video games for traditionally interpersonal uses?

--Why do people say they play games? Can we believe them?

METHODS AND PROCEDURES

The questionnaire used in this study was patterned after Lieberman's Playfullness Scale (1977), and was adapted to measure (1) frequency of play (2) amount of time participating in game playing (3) preference for types of games (Iso-Ahola 1979:29), and (4) meaning and (5) attitude toward leisure (Meyersohn 1969).

Two hundred individuals were questioned by a team of twenty interviewers who were instructed to go to bars, malls, arcades, restaurants, or any other place where video games were present, to observe whether the subjects were playing alone or with someone, the game being played, and the level of apparent involvement with the game. Interviewers were instructed to approach subjects which would fit the following categories, and report equal numbers of respondents in each category: (1) male under 21 (2) female under 21 (3) male over

over 21 (4) female over 21. After individuals were finished playing a video game, they were approached and asked a series of questions (see appendix). Respondents ranged from 7 to 62.

Data was then analyzed to determine frequencies of respondents, correlations of specific items, and cross-tabulations of age, sex, and attitudinal and lifestyle data.

RESULTS

Of the 200 subjects, 110 were male, 90 were female. It was sometimes difficult for interviewers to find women playing video games in malls or arcades who were over 21, so the sample of these women were found in restaurants, bars, and train terminals. All other age groups were questionned in the above-named areas as well as in arcades, student centers, and fast-food restaurants.

Male respondents appeared to play video games significantly more often than did female respondents, with younger males playing more often than any other age or sex group. While female respondents usually played only one or two games, the patterns of usage in the number of games played was not significant, though the amount of money spent weekly did indicate that males pay more for games per week (on the average, males pay $3.75/wk. while females pay only $2.50/wk.)

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insert table 1 about here

When contrasting the number of games played per week with a preference for indoor or outdoor activity, it becomes apparent that video game players tend to prefer participating in activity indoors, and tend to play a greater variety of games. While no significant correlation was found to indicate that these individuals who prefer to stay indoors tended to own their own games, there was also no correlation with the amount of money spent on video game playing. Therefore, it could be interpreted to mean that indoor activity does not necessarily indicate the level of interest in video games, or the willingness of the respondent to purchase a home system.

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insert table 2 about here

While women in general preferred to play against someone else rather than against the machine, they also demonstrated a higher level of computer knowledge than did male respondents.

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insert table 3 about here

Both males and females who perceived receiving some relaxation from video game playing, tended to have less active lifestyles than other respondents, while individuals who perceived of playing video games as challenging tended

to lead more active lifestyles. Interestingly, there were no major differences between male and female respondents regarding "relaxing" or "challenging" responses to video game playing, but individuals (male and female) who did not have any computer literacy overwhelmingly listed video games as more "challenging."

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insert table 4 about here

Perhaps the most surprising finding of the sex bias between perceiving video games as "relaxing" or "challenging" was revealed when participants listed their most favorite video games. Men tended to name more games of skill and defensive positions (i.e. "Pong," "Asteroids," "Galaxian,") while women preferred games with more animation (i.e. "Ms. Pac Man," "Donkey Kong Jr."). The overwhelming favorite however (for both sexes) was "Pac Man," though few male respondents (1.5%) listed "Ms. Pac Man" in their top three choices.

Open ended responses to the question "Why do you play video games?" generated interesting answers which seemed highly biased by age. While popular literature seems to indicate that adults are concerned about youths' wasting time the answer "to waste time" was given 48% of the time by respondents over the age of 35. Only 2% of the respondents under 35 answered similarly, but younger respondents often

used the terms "to fill time" or "to kill time" as an answer. The overwhelming answer from people under 18 was, "because it's fun."

DISCUSSION

The major impact age seemed to have on video game playing, was the preference for older players (especially those of age 40+) to concentrate on fewer games. Because older respondents did not generally acknowledge any computer skills, it may be possible to explain that they therefore found video game playing more challenging than relaxing. As Hall (1906) and Groos (1901) stated, game playing may teach people necessary skills for the future. Given the technological climate in our society, young people are more adaptable to using technology, and therefore, the skills they develop by playing video games will aid in their technological awareness and adaptablity.

Though many leisure researchers have suggested that status, prestige and occupation influence leisure activities (Clarke 1956; Reissman 1954; White 1955; Thomas 1956; Havinghurst and Feigenbaum 1959; Gerstl 1961; Burdge 1969; Bishop and Iheda 1970), the only possible "status" indicative of video game playing is computer literacy. A preference for entertainment in the home was not correlated with level of activity for respondents, therefore, there was no impetus to extract occupational status and/or prestige.

With regard to the second question posed, it appears that the popular writings and even the video game industry may be over-reacting to the amount of money spent on video games. While younger players did in fact play more often, and a greater number of games, the amount of money was less than the popular press would lead one to believe. When comparing the amount of money spent on video games by the amount of game playing, it appears that not only are young people acquiring certain skills which allow them to play longer, but that their investment of 25¢ may indeed last longer. Based on the amount of money spent, it is impossible to state that a positive relationship with other "addictive" behaviors (or compulsive gambling) is present, but if the study were replicated, it would be advisable to have a category of the length of time an individual spends playing games. If the popular press is correct, that there may be young "video all-stars," who may play all day on twenty-five cents, another dimension to the study would have to be included. However, if the amount of time playing games was significant, the finding would confirm the "skills" value of video game playing.

The data suggests that Stephenson's "Play Theory" has some credibility when discussing video games, however, traditional game playing theories seem to tip the scale in their favor. Though individuals do "rock the boat" to be in the forefront of change by playing games, the sociolization

element needs to be qualified. It appears that as a player becomes more comfortable with the technology and therefore demonstrates more skill, that game playing becomes more "relaxing," and (as demonstrated by female respondents) the technology becomes a mere adjunct to the gaming situation. In this case, sociolization into a technologically-comfortable strata occurs.

It was expected that women would be found to play much less than men, given cultural patterns of male encouragement and expectation of play (Lieberman 1978:126), but this did not become apparent. However, the need for game playing and the types of games played by different sexes was discerned to show that there may indeed by a sex bias within games (i.e. women preferring to play Ms. Pac Man).

While self report to the question "Why do you play video games" is in no way statistically correllated to the other data, it is interesting to see that adults (supposedly the group reported by the popular press to have the highest concern for their children's waste of time) say they waste time when playing. Perhaps individuals of different ages have different perceptions about what "wasting time" is, and possibly, age may redefine the perceived use of game playing.

DISCUSSION

Based on the findings of this study, it appears that video game playing does indeed teach necessary skills for survival in a technologically-based society, and that younger people are not as apprehensive as older persons are to the use of technology for traditional purposes. One question remains to be answered, and that is whether or not video game playing substitutes interface with machinery for interpersonal behavior. Given that respondents to this survey generally acknowledged that games were more "challenging" if they did not possess computer skills, it seems likely that greater experience with technology may relegate video games to more "relaxing" pasttimes.

Similarly, the term "addiction" may be used too liberally, given the amount of play and the amount of money spent on games by younger respondents. The perceived use of video games may eventually do away with the stress young people feel when coaches, parents, etc., encourage them to compete interpersonally. With video game playing, there is no fear of friends' rejection or failure, and as computer skills become more prevalent, the technology may appear to be an adjunct to traditional interpersonal situations, not a replacement for them.

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TABLE 1

FREQUENCY OF PLAY: Number of games per week (All percentages indicate percent of the sample of 200 respondents)

	0-1	1	2	3	4	5	6	7	8	9	10
Male	19	4	22	9	7	28	2	9	1	0	0
%	9.5	2.0	11.0	4.5	3.5	14.0	1.0	4.5	0.5	0	0
Female	35	4	28	7	4	3	1	2	0	0	1
%	17.5	2.0	14.0	3.5	2.0	1.5	0.5	1.0	0	0	0.5

NUMBER OF DIFFERENT GAMES

	0-1	1	2	3	4	5	6	7	10	12
Male	1	11	26	18	32	7	4	1	2	3
%	0.5	5.5	13.0	9.0	16.0	3.5	2.0	0.5	1.0	1.5
Female	1	23	22	19	16	2	3	1	1	0
%	0.5	11.5	11.0	9.5	8.0	1.0	1.5	0.5	0.5	0.0

AMOUNT OF MONEY SPENT PER WEEK: To nearest dollar

	<$1	1	2	3	4	5	8	10	12
Male	13	15	14	18	14	28	2	4	0
%	6.5	7.5	7.0	9.0	7.0	14.0	1.0	2.0	0
Female	4	38	21	11	2	7	1	3	1
%	2.0	19.0	10.5	5.5	1.0	3.5	0.5	1.5	0.5

TABLE 2

LEVEL OF ACTIVITY/PREFERENCE FOR INDOOR--OUTDOOR

		Prefers Indoor	Prefers Outdoor
Number of games played per week:	0-1	12 6.0 %	4 2.0 %
	1	41 20.5	10 5.0
	2	26 13.0	10 5.0
	3	18 9.0	12 6.0
	4	10 5.0	6 3.0
	5	18 9.0	17 8.5
	8	1 0.5	2 1.0
	10	6 3.0	1 0.5
Column Total		132 66.0%	63 31.5%

%of sample of 200

TABLE 3

PREFER TO PLAY ALONE OR WITH SOMEONE

	Alone	With Someone
Males	69	38
%	34.5	19.0
Females	31	56
%	15.5	28.0

COMPUTER LITERACY

	Knows how to operate computer	Does not know how to operate computer
Males	40	63
%	20.0	31.5
Females	42	43
%	21.0	21.5

% of sample of 200

TABLE 4

PERCEIVED USE BY SEX

How relaxing is playing video games?

	Very	Moderately	Somewhat	Rarely	Never
Male	4	18	42	22	21
%	2.0	9.0	21.0	11.0	10.5
Female	6	17	22	20	22
%	3.0	8.5	11.0	10.0	11.0

How challenging is playing video games?

	Very	Moderately	Somewhat	Rarely	Never
Male	62	16	9	18	3
%	31.0	8.0	4.5	9.0	1.5
Female	31	23	15	11	7
%	15.5	11.5	7.5	5.5	3.5

% of sample of 200

APPENDIX

Video Game User Survey

Interviewer ____

1. Age ____ 2. Sex ____ 3. How often do you play video games? ___

4. How many different games do you play? _____

5. How much money do you spend per week on video games? _____

6. How relaxing do you find playing video games?

Very	Moderately	Somewhat	Rarely	Never
1	2	3	4	5

7. How challenging do you find playing video games?

Very	Moderately	Somewhat	Rarely	Never
1	2	3	4	5

8. Do you prefer to play video games alone or with someone?

Alone	With Someone
1	2

9. Do you regularly play any games, such as card games, board games, parlor games, in the home?

Yes	No	
1	2	What?_____

10. Do you regularly play any sports, i.e. tennis, football, soccer, etc?

Yes	No	
1	2	What? _____

11. When you play sports, do you play in teams?

Yes	No	Sometimes
1	2	3

12. Have you ever been a member of a team which played sports regularly?

Yes	No
1	2

13. How much physical activity do you have in an average day?

more than 3/4/day	more than 1/2/day	about 1/2/day	less than 1/2/day	less than 1/4/day
1	2	3	4	5

14. Do you prefer to spend more time indoors than outdoors?

Yes	No
1	2

15. What are your favorite video games (please list according to preference)?

1. _____ 6. _____
2. _____ 7. _____
3. _____ 8. _____
4. _____ 9. _____
5. _____ 10. _____

16. Do you know how to operate a computer? Yes No

17. Do you own your own home video game? Yes No

18. If so, what system do you own? _____

19. If you were to buy a video game now, what kind would you buy?

20. Why do you play video games?

_____

FOR THE INTERVIEWER:

21. Where did the interview take place?

an arcade _____ a mall _____
a restaurant _____ other _____
a bar _____

22. Did you observe the person playing the video game? Yes No

23. What game was the person playing? _____

24. Was the person playing: Alone With Someone

25. Did the person terminate the questionnaire before completing it?

Yes No